

Amendments to the Claims:

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1-64. (Cancelled).

Claim 65. (New) Apparatus for reducing noise in an area proximate an ear of an observer, comprising:

a transducer arranged to transduce noise sound substantially in said area into a signal;

a measuring device arranged to measure the signal from the transducer; and a sound cancellation device configured to receive information from the measuring device, generate a cancellation sound of approximately an equal intensity and opposite polarity to said noise sound, and transmit said cancellation sound to said area thereby substantially reducing the amount of noise sound audible in said area by said observer; wherein,

the transducer is mounted on the body of the observer;

the measuring device is remote from the transducer;

the transducer wirelessly transmits the signal, representing sound
in the vicinity of the ear canal, to the measuring device;

the wireless transmission of the signal takes the form of light
reflected from the transducer; and

said measurement device is an optical device.

Claim 66. (New) The apparatus as claimed in Claim 65, wherein said
transducer includes pressure sensitive paint.

Claim 67. (New) The apparatus according to Claim 66, wherein the
transducer comprises a pressure sensitive paint applied to the skin of the
observer.

Claim 68. (New) The apparatus as claimed in Claim 65, wherein said
transducer comprises human skin.

Claim 69. (New) The apparatus according to Claim 65, wherein said
skin comprises a part of the ear of the observer.

Claim 70. (New) The apparatus as claimed in Claim 69, wherein said skin is a part of one of a human pinna, a human concha, and a human cavum.

Claim 71. (New) The apparatus as claimed in Claim 65, wherein said transducer is a sensor.

Claim 72. (New) The apparatus according to Claim 66, wherein the transducer comprises a sensor embedded in an item of jewelry adapted for wearing on the ear of the observer.

Claim 73. (New) An item of jewelry, for wearing on or proximate the ear, comprising a transducer according to Claim 65.

Claim 74. (New) The item of jewelry, according to Claim 73, wherein the item of jewelry comprises an earring.

Claim 75. (New) The apparatus as claimed in Claim 74, wherein said optical device is an interferometer.

Claim 76. (New) The apparatus as claimed in Claim 75, wherein said interferometer comprises a laser as a light source.

Claim 77. (New) The apparatus as claimed in Claim 65, further comprising a filter disposed between said measuring device and said cancellation device, and arranged to pass a range of frequencies, thereby enabling said apparatus to cancel noise sound based on a frequency of said noise.

Claim 78. (New) The apparatus as claimed in any of Claim 65, further comprising a tracking device arranged to search for said transducer, to acquire a location of said transducer, and to track said location of said transducer, said tracking device being further arranged to communicate said location of said transducer to said measuring device.

Claim 79. (New) The apparatus as claimed in Claim 78, wherein said tracking device is disposed in a headrest.

Claim 80. (New) The apparatus as claimed in Claim 78, wherein said tracking device is a video tracking device.

Claim 81. (New) The apparatus as claimed in Claim 65, further comprising a further measuring device disposed remote from said area and arranged to measure background noise proximate to said area, said background

Serial No. 09/821,118

Amendment Dated: November 12, 2004

Reply to Office Action Mailed July 16, 2004

Attorney Docket No. 3036/49818

noise being communicated to said sound cancellation device to facilitate reducing the amount of noise audible in said area.

Claim 82. (New) The apparatus as claimed in Claim 81, wherein said further measuring device is a microphone.

Claim 83. (New) A method for reducing noise in an area proximate an ear of an observer, the method comprising the steps of:

transducing noise sound in said area into a signal, using a transducer mounted on the body of the observer;

measuring said signal;

generating a sound of approximately an equal intensity and opposite polarity to said measured sound;

transmitting said generated sound to said area, reducing noise audible in said area; and

wirelessly transmitting the signal from the transducer to a remote measuring device;

wherein the wireless transmission of the signal is achieved by the reflection of light from the transducer, for measurement in an optical device.

Claim 84. (New) The method as claimed in Claim 83, wherein said reflection comprises reflection from pressure sensitive paint.

Claim 85. (New) The method according to Claim 84, further comprising a step of applying the pressure sensitive paint to the skin of the observer, for use as the transducer.

Claim 86. (New) The method as claimed in Claim 83, wherein human skin is used as the transducer.

Claim 87. (New) The method according to Claim 83, wherein the skin of an ear of the observer is used as the transducer.

Claim 88. (New) The method as claimed in Claim 87, wherein the skin of one of a human pinna, a human concha; and a human cavum, is used as the transducer.

Claim 89. (New) The method as claimed in Claim 83, wherein the light is measured in an interferometer.

Claim 90. (New) The method as claimed in Claim 89, wherein a laser is used as a light source for emitting light for reflection by the transducer.

Claim 91. (New) The method as claimed in Claim 83, wherein said transducer is a sensor.

Claim 92. (New) The method according to Claim 91, wherein the transducer is embedded in an item of jewelry for wearing on the ear of the observer.

Claim 93. (New) A method as claimed in Claim 83, further comprising filtering between a measuring device and said cancellation device to pass a range of frequencies, thereby enabling said apparatus to cancel noise sound based on a frequency of said noise.

Claim 94. (New) Apparatus as claimed in Claim 83, further comprising tracking by searching for said transducer, acquiring a location of said transducer, tracking said location of said transducer, and communicating said location of said transducer to said measuring device.

Serial No. 09/821,118

Amendment Dated: November 12, 2004
Reply to Office Action Mailed July 16, 2004
Attorney Docket No. 3036/49818

Claim 95. (New) The apparatus as claimed in Claim 94, wherein said tracking is performed by a video tracking device.

Claim 96. (New) A method as claimed in Claim 83, comprising the further step of measuring background sound remote to said area, and using said measurement of background sound to facilitate the reducing the amount of noise audible in said area.